

$^{146}\text{Nd}(\alpha, t)$ 1979St01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	N. Nica and B. Singh		NDS 181, 1 (2022)	9-Mar-2022

Additional information 1.

1979St01: $E(\alpha)=24$ MeV. Measured triton spectrum and $\sigma(\theta)$ at 45° and 60° with $\text{FWHM}\approx 14$ keV using Enge-type split pole magnetic spectrograph and nuclear emulsions. Deduced levels.

1979St01 also report data from $^{146}\text{Nd}(^3\text{He}, d)$ and $^{148}\text{Sm}(t, \alpha)$ reactions. See separate datasets for these reactions.

 ^{147}Pm Levels

Relative cross sections are accurate to 10% while the absolute cross sections have uncertainties of $\approx 25\%$.

E(level) [†]	L [‡]	Comments
0		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=78 (45°), 72 (60°).
91 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=129 (45°), 142 (60°).
409 4	(2,3,4)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=2.5 (45°), 2.9 (60°).
492		E(level): from (t, α) data.
631 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=0.8 (45°), 1.0 (60°).
648 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=55 (45°), 60 (60°).
683 4	(2,3)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=237 (45°), 213 (60°).
729 4	(2,0)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=1.2 (45°), 6.7 (60°).
		L=(2) is adopted by 1979St01.
806 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=2.9 (60°).
881 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=3.8 (45°), 6.4 (60°).
930 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=3.5 (45°), 8.0 (60°).
977 4	(3)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=2.3 (45°), 7.2 (60°).
1040 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=4.7 (45°), 2.8 (60°).
1187 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=11.2 (45°), 9.9 (60°).
1316 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=2.0 (45°), 2.1 (60°).
1346 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=1.3 (45°), 1.8 (60°).
1376 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=7.4 (45°), 7.9 (60°).
1387 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=1.0 (45°), 1.9 (60°).
1473 4	(4,5)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=3.0 (45°), 5.0 (60°).
		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=12 (45°), 11 (60°).
		L=(4) adopted by 1979St01.
1586 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=6.7 (60°).
1596? 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=1.6 (60°).
1632 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=7 for 1632+1641 (45°), 3.5 (60°).
1641 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=7 for 1632+1641 (45°), 7.3 (60°).
1704 4	(5,4)	L=(5) adopted by 1979St01.
		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=15 (45°), 22 (60°).
1794? 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=2.4 (60°).
1890? 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=0.9 (60°).
1931 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)<5 (60°).
2009 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=10 (45°), 17 (60°).
2032? 4		$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=2.3 (60°).
2071 4	(4)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=0.9 (45°), 4.8 (60°).
2106 4	(2)	$d\sigma/d\Omega$ ($\mu\text{b}/\text{sr}$)=1.4 (45°), 3.1 (60°).

[†] Uncertainties are stated by 1979St01 as less than 4 keV.

[‡] From data ratio of (α, t) cross sections at $\theta=60^\circ$ and ($^3\text{He}, d$) cross sections at $\theta=50^\circ$, compared with same ratios calculated by DWBA.